

## **AUDIT II**

# **Country Report THE UNITED KINGDOM**

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## SUMMARY OF ENERGY AUDITING

### **National energy policy**

The UK's target under the Kyoto protocol is to achieve a 12,5% reduction (below 1990 levels by 2008 to 2010). The present Government has committed to a 20% CO<sub>2</sub>-reduction by 2010. Furthermore, the Royal Commission on Environmental Pollution (RCEP) have made a strong case for a 60% cut in greenhouse gas emissions by 2050.

The UK's Climate Change Programme (published in November 2000) set out a substantial, integrated package of policies and measures to (among other things) improve business' use of energy, stimulate investments and cut costs (introducing the Climate Change Levy package, the Emissions Trading Scheme, and the Carbon Trust). The programme also lists several measures for power generation, transport, domestic sector, agriculture, etc) to improve energy efficiency and cut emissions.

The UK energy policy does not explicitly address energy intensive sectors but covers all industrial, commercial and domestic sectors.

**The Carbon Trust** was established in 2001 to cut CO<sub>2</sub> emissions in business and in the public sector. The Carbon Trust will play a leading role in helping to deliver the UK's CO<sub>2</sub> emissions reduction targets. by providing a range of programmes and initiatives to help businesses exploit the commercial opportunities available to them in moving towards a low carbon economy. These initiatives include Action Energy, the Enhanced Capital Allowance Scheme and the Low Carbon Innovation Programme.

### **Action Energy**

**Action Energy**, formerly known as The Energy Efficiency Best Practice Programme (EEBPP), is the main energy efficiency information, advice and research programme for organisations in the public and private sectors.

The programme focuses on non-financial help in the form of best practice advice and training but operates in close collaboration with other initiatives run by The Carbon Trust including the new Energy Loan Scheme and the Enhanced Capital Allowances Scheme.

By the end of 2000, the EEBPP had stimulated savings worth £800 million (€1216 million) (1990 prices) on an annual basis. This represents excellent value for an annual expenditure of £20 million (over €30 million) of public money.

### **Fiscal incentives**

**The Climate Change Levy** is a tax on energy use in industry, commerce, agriculture and the public sector. All except the very small UK businesses and all public sector organisations pay the Levy, via their energy bills. The tax varies in its effect but typically will add about 10-15% to energy bills. The organisations committing to Climate Change Levy Agreements are eligible for discounts.

Many intensive users of energy are able to form **Climate Change Agreements** and thus mitigate the effects of the Climate Change Levy. Under these agreements businesses that accept and subsequently meet energy reduction targets will receive an 80% discount from the CCL until the year 2013. There are over 40 agreements already in place.

The Government has introduced the **Enhanced Capital Allowance Scheme** for energy saving investments in order to encourage business to reduce carbon emissions through providing a new incentive to invest in carbon-saving technologies. The ECA Scheme supports CHP, boilers, motors, variable speed drives, lighting, refrigeration, pipe insulation materials, thermal screens, etc which meet the relevant energy efficiency criteria.

The Government has been working with the business-led Emissions Trading Group to develop the **Emissions Trading Scheme**. In the beginning of 2002 the UK Emissions Trading Scheme (UK-ETS) was launched. The companies within Climate Change Agreements under the CCL will also be able to use emissions trading.

## Energy Audit Programmes

There are no stand-alone energy audit programmes in the United Kingdom.

## Other Programmes with Energy Audits

### Survey scheme within Action Energy

Amongst its many activities, Action Energy includes the provision of support for energy surveys. The scope of the energy surveys and support provided depends on the nature of the site, its overall energy consumption, whether there are any specific issues that have to be addressed, in addition to the history of energy management activities at the site.

The site surveys cover all target sectors, both buildings and industry. Action Energy is not active in business transport nor in the residential buildings sector.

**The Carbon Trust** defines the annual budgets for the survey activity and sets the annual targets as part of its business planning process for the overall Action Energy programme. The Carbon Trust leads the overall strategic development of the site survey programme and ensures the co-ordination of survey activity with other Action Energy programme activities.

**WS Atkins** are responsible for the overall operation of the survey programme and the Energy Helpline. In this respect they are a one-stop-shop for all energy efficiency advice, whether provided directly by the Helpline operators or indirectly via experts within the Technical Lead Contractors or by the external consultants contracted to the programme.

The Action Energy programme recognises 5 generic types of survey support:

- **For Small to Medium Sized Enterprises** a specific programme of advice has been created by The Carbon Trust and is run jointly with the Energy Saving Trust.
- **General Surveys** are targeted for organisations whose energy bill exceeds £50k per year - a free site survey is possible.
- **Detailed Surveys:** Once a site has had a General Survey, or its equivalent, it becomes eligible for a Detailed Survey. The level of subsidy provided is 50% although this is presently subject to review.

- **Design Advice** for new build and retrofit building projects offers professional, independent and objective advice on the energy-efficient and environmentally conscious design of buildings. Clients are offered a one-day consultancy, paid for by a cashback scheme.
- **Multi-site Organisations** with many similar sites, require a specific approach that recognises the possibility for replication and internal dissemination of best practice. Such companies are dealt with on a case by case basis, through a form of partnership arrangement, co-ordinated by the Technical lead contractors.

To date the programme has exceeded its targets. 4030 surveys have been carried out during the two first years of programme operation. Indication are that the same will occur during the current year as well with demand for General surveys exceeding targets particularly in the industrial sector. The number of surveys planned for 2003/04 will depend greatly on the outcome of impact assessment study and other performance measurement exercises being carried out under the direction of The Carbon Trust.

## **Other Activities including Energy Audits**

### **Energy Saving Trust**

The Energy Saving Trust (EST) is a non-profit company set up in 1992 by the Government and major energy companies. It was established to develop and manage new programmes to promote the efficient use of energy by domestic and small business consumers and also the road transport sector.

The Energy Saving Trust is involved in a number of initiatives concerning energy efficiency, renewable energy and clean fuels.

**Energy Efficiency Advice Centres** (EEACs) provide free, impartial and locally relevant energy efficiency advice to householders and small businesses across the UK. Financial support is offered to small and medium sized industrial enterprises for energy efficiency consultancy and project management to achieve the EC EMAS status. Energy audits have been sometimes applied in the consultancy.

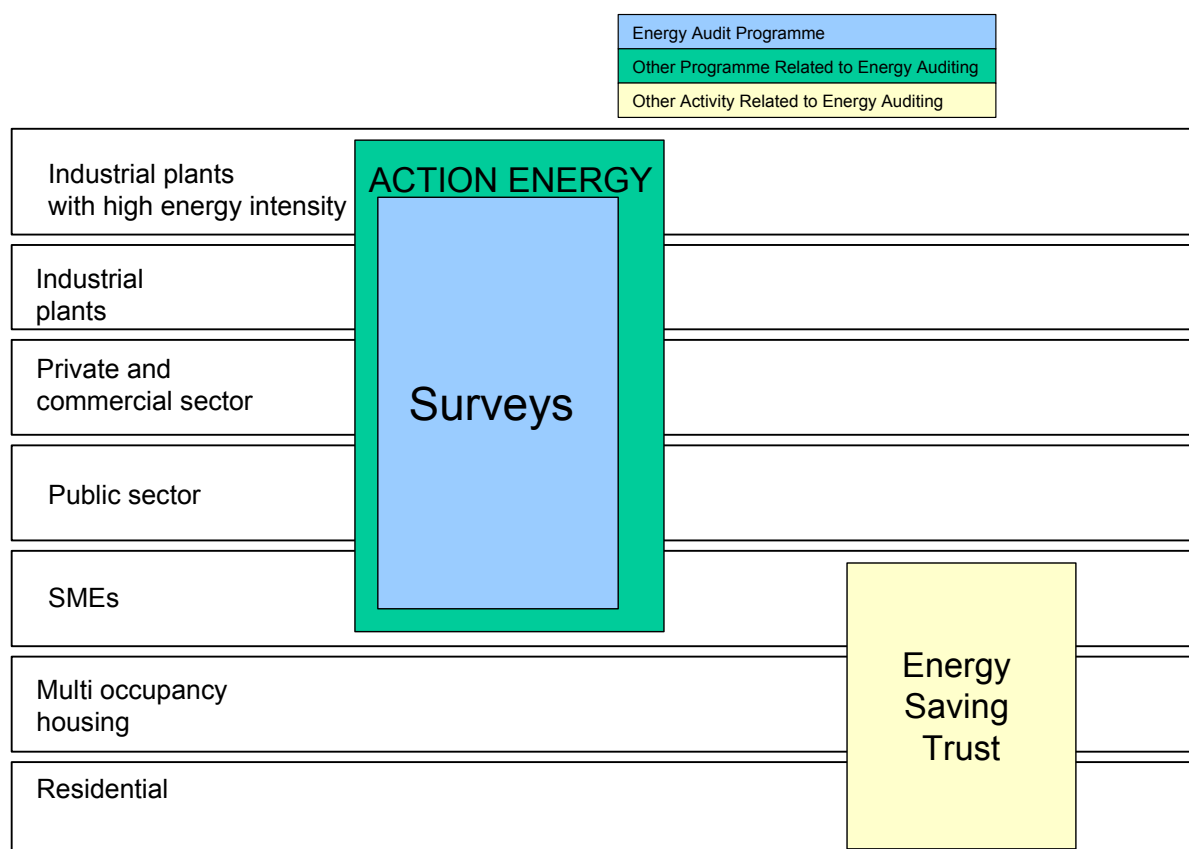


Figure 1. The Map of energy audits in the United Kingdom

Table of EAP features coverage

	EEBPP Action Energy
<b>Status</b>	Ongoing
<b>Administration</b>	+++
<b>EA models</b>	++
<b>Auditors' tools</b>	
<b>Training, authorisation</b>	+
<b>Quality control</b>	++
<b>Monitoring</b>	
<b>Volumes, results</b>	
<b>Evaluation</b>	

+++ = Detailed information available  
 ++ = Some information available  
 + = Very little information available  
 = No information available / does not exist

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### Country Report

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### Disclaimer

The information contained in this report has been gathered from publicly available sources and through interviews. All efforts have been made to secure the veracity of the report, however the authors cannot guarantee the content.

## THE COUNTRY REPORT

### Table of Contents

<b>1</b>	<b>Background And Present National Energy Policy</b>	<b>8</b>
1.1	Previous Activities	8
1.2	Present National Energy Policy	8
1.3	The Carbon Trust And Its Role	9
1.4	Action Energy – Formerly The Energy Efficiency Best Practice Programme	10
1.5	Fiscal Incentives In The UK	11
1.5.1	The Climate Change Levy	11
1.5.2	The Climate Change Agreements	12
1.5.3	The Enhanced Capital Allowance (ECA) Scheme	12
1.5.4	The Emissions Trading Scheme	12
1.5.5	Summary Of The Fiscal Incentives	13
<b>2</b>	<b>Energy Audit Programmes</b>	<b>13</b>
<b>3</b>	<b>Other Programmes Including Energy Audits</b>	<b>14</b>
3.1	Action Energy	14
3.1.1	Goals	14
3.1.2	Target Sectors	14
3.1.3	Administration	15
3.1.4	Implementing Instruments	16
3.1.1	Energy Audit Models	17
3.1.5	Auditors' Tools	18
3.1.6	Authorisation, Training And Quality Control	20
3.1.7	Monitoring	21
3.1.8	Auditing Volumes	22
<b>4</b>	<b>Other Activities Including Energy Audits</b>	<b>23</b>
4.1	The Energy Saving Trust	23
<b>5</b>	<b>References</b>	<b>24</b>

# **1 Background and Present National Energy Policy**

## **1.1 Previous activities**

Energy auditing, as the *Energy Survey Scheme*, was a feature of energy policy towards the end of the 1980s, however this scheme did not deliver the desired results with many of the energy audit reports going unread. A survey in 1993 revealed that well less than 50% of audits lead to action to implement energy efficiency improvements or any other energy management programmes. The key reasons identified were:

- Lack of capital
- The good projects identified during the surveys were not given a high priority for implementation;
- There was a general shortage of energy management skills within the beneficiary organisations – there was a general lack of formal energy policies, energy management was not integrated within the management structure, low levels of motivation, inadequate information systems no internal / external promotion of energy efficiency as a worthwhile corporate goal and little or no priority given for investment in energy efficiency compared to investment in other projects.

UK energy policy does not explicitly address energy-intensive sectors but covers all industrial, commercial and domestic sectors. Several governmental energy programmes were established in the 1990s. Remarkable for all British energy efficiency initiatives is that they have been purely voluntary. The philosophy is that the good example of energy-efficiency experience in one organisation results in an effect on the rest of sector, if it just receives information.

Energy auditing has been included in the best practice programmes in the 1980's and 1990's but has not lead to widely accepted or long-term activities.

## **1.2 Present national energy policy**

The UK Government took a strong line at Kyoto. It has continued to demonstrate its commitment on this issue by setting a domestic target that goes beyond the country's targets under the Kyoto protocol. The UK's target under this agreement is to achieve a 12,5% reduction (below 1990 levels by 2008 to 2010). The present Government has committed to a 20% CO<sub>2</sub>-reduction by 2010. Furthermore, the Royal Commission on Environmental Pollution (RCEP) have made a strong case for a 60% cut in greenhouse gas emissions by 2050.

The UK's Climate Change Programme (published in November 2000) set out a substantial, integrated package of policies and measures to:

1. improve business' use of energy, stimulate investment and cut costs:
  - the Climate Change Levy package,
  - a domestic Emissions Trading Scheme,
  - establishment of a new Carbon Trust,
  - exemption of good quality CHP (combined heat and power) and renewable sources of electricity from the Climate Change Levy;
  - energy labels, standards and other product-related measures designed to deliver 'market transformation' in the energy efficiency
  - Integrated Pollution Prevention and Control.



2. stimulate new, more efficient sources of power generation:
  - electricity suppliers will be obliged to increase the proportion of electricity provided by renewable sources to 10% by 2010,
  - a target to at least double the UK's CHP capacity by 2010.
3. cut emissions from the transport sector:
  - European-level agreements with car manufacturers to improve the average fuel efficiency on new cars by at least 25% by 2008-2009
  - the 10 Year Plan: £180 billion of investment and public spending on transport over the next ten years
4. promote better energy efficiency in the domestic sector, saving householders money:
  - a new Energy Efficiency Commitment (successor to the Energy Efficiency Standards of Performance), through which electricity and gas suppliers will help their domestic customers to save energy and cut their fuel bills;
  - the New Home Energy Efficiency Scheme in England, similar schemes for Wales and Northern Ireland and, in Scotland, the Warm Deal Initiative;
  - an Affordable Warmth Programme developed in conjunction with Transco to facilitate the installation of efficient gas central heating systems and insulation in a million homes;
  - the promotion of new community heating and upgrading of existing systems;
  - more efficient lighting, heating and other appliances.
5. improve the energy efficiency requirements of the Building Regulations;
6. continue cutting emissions from agriculture by:
  - better countryside management;
  - cutting fertiliser use;
  - protecting and enhancing forests; and
  - better energy efficiency.
7. ensure the public sector takes a leading role by:
  - new targets for improving energy management of public buildings;
  - energy efficiency targets for local authorities, schools and hospitals; and
  - developing green travel plans.

### 1.3 The Carbon Trust and its role

The Carbon Trust ( [www.thecarbontrust.co.uk](http://www.thecarbontrust.co.uk) ) was established in April 2001 to cut CO<sub>2</sub> emissions in business and in the public sector. It is an independent not-for-profit company limited by guarantee with initial funding from the UK Government and Devolved Administrations. The Carbon Trust will play a leading role in helping to deliver the UK's CO<sub>2</sub> emissions reduction targets.

The Carbon Trust has three objectives:

- to ensure that business and the public sector meet ongoing targets for carbon dioxide emissions
- to improve the competitiveness of UK industry through resource efficiency
- to support the development of a UK industry that capitalises on the innovation and commercial value of low carbon technologies

The Carbon Trust board is made up of high-level representatives from business, the research world, trade unions, NGOs and Government.

The Carbon Trust provides a range of programmes and initiatives to help businesses exploit the commercial opportunities available to them in moving towards a low carbon economy. These initiatives include:

- Action Energy – formerly The Energy Efficiency Best Practice Programme (EEBPP)
- The Enhanced Capital Allowance Scheme
- The Low Carbon Innovation Programme

A new Energy Loan Scheme is being introduced to help small and medium sized companies to invest in energy efficiency - the Carbon Trust is expecting to have a total of £10 million (€15.2 million) available to give as interest free loans for measures identified as part of an Action Energy general survey.

#### **1.4 Action Energy – formerly The Energy Efficiency Best Practice Programme**

Action Energy ( [www.actionenergy.org.uk](http://www.actionenergy.org.uk) ), formerly known as The Energy Efficiency Best Practice Programme (EEBPP), is the main energy efficiency information, advice and research programme for organisations in the public and private sectors. The programme was started in 1989 to encourage the spread of energy efficient technologies and techniques throughout UK industry and the national building stock.

Action Energy is funded by the UK Government through the Department of the Environment, Food and Rural Affairs (DEFRA) with financial contributions also from the Devolved Administrations in Scotland, Wales and Northern Ireland.

The programme focuses on non-financial help in the form of best practice advice and training but operates in close collaboration with other initiatives run by The Carbon Trust including the new Energy Loan Scheme and the Enhanced Capital Allowances Scheme.

By the end of 2000, the EEBPP had stimulated savings worth £800 million (€1216 million) (1990 prices) on an annual basis. This represents excellent value for an annual expenditure of £20 million (over €30 million) of public money.

Action Energy makes it easier for those responsible for energy use and energy efficiency to the information needed to save energy, money and carbon dioxide emissions. Action Energy provides help and advice through telephone help-lines, the internet, publications, seminars, workshops and conferences, general and detailed site energy surveys and building design advice support.

Action Energy is successful mainly because it forms a co-operative partnership with business sector associations, professional institutions and the many consultants and sub-contractors who work on the programme.

In the period before January 2001, the Energy Efficiency Best Practice programme was delivered by ETSU (part of AEA Technology) whose responsibilities were for energy efficiency in industry and business transport, and by BRECSU, a part of The Buildings Research Establishment, whose responsibilities covered energy efficiency in commercial and public sector buildings.

In January 2001 Quantum Partnership Ltd were appointed as the Lead Management Contractor for the Energy Efficiency Best Practice programme with the responsibility for identifying a new structure for the programme, bringing in new expertise, to let contracts for the main functional areas and to manage the transition as responsibility for the programme transferred from DEFRA to the Carbon Trust in July 2002.

At the same time programme elements which previously were considered as part of the EEBPp although funded separately were transferred out. This affected energy efficiency in business transport, funded by DTLR where the responsibility was moved to the Energy Saving Trust (EST), and the Housing Energy Efficiency Best Practice programme again transferred to the EST.

To signal the new direction, the Energy Efficiency Best Practice programme was renamed Action Energy.

Figure 1 shows the structure of Action Energy.

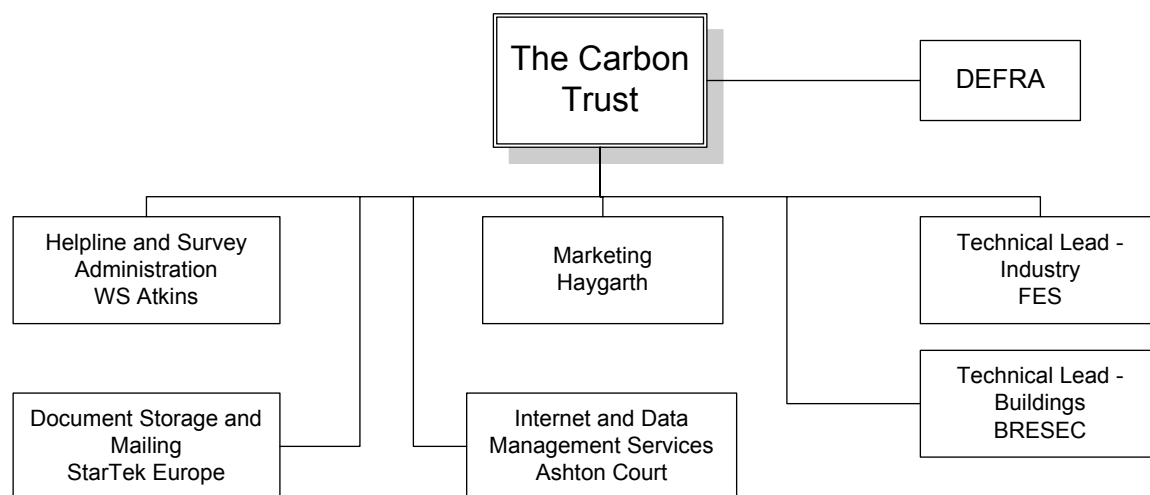


Figure 2 The structure of Action Energy

## 1.5 Fiscal incentives in the UK

### 1.5.1 The Climate Change Levy

The Climate Change Levy is a tax on energy use in industry, commerce, agriculture and the public sector. The tax was introduced in April 2001. All except the very small UK businesses and all public sector organisations pay the Levy, via their energy bills.

The CCL is designed to shift the burden of taxation from social “goods” like employment to social “bads” like environmental pollution.

The tax varies in its effect but typically will add about 10-15% to energy bills. However those organisations committing to Climate Change Levy Agreements (see section 1.5.2) are eligible for discounts, in addition some energy sources or uses of energy are also exempt e.g. Fuel input to ‘Good Quality’ CHP schemes and certain renewable energy supplies.

The CCL charges are for different energy forms

electricity	0,43	p/kWh	0,65	euro cent/kWh
gas	0,15	p/kWh	0,23	euro cent/kWh
coal	0,15	p/kWh	0,23	euro cent/kWh
LPG	0,07	p/kWh	0,11	euro cent/kWh

The fuels that do not attract the CCL include mineral oils, diesel, petrol, paraffin, household refuse, waste paper, sewage gas, landfill gas, etc, since these are already subject to other taxes and/or levies.

The Climate Change Levy is expected to raise around £1 billion (1,5 billion €) in the first year. All of the Levy revenues will be recycled to the non-domestic sector. The funds will be recycled principally by a 0,3 percentage point reduction in employers' National Insurance contributions. £120 million (about 180 million €) of Levy revenues has also been allocated for energy efficiency and renewables in 2001/2002.

### 1.5.2 The Climate Change Agreements

Many intensive users of energy are able to form Climate Change Agreements and thus mitigate the effects of the Climate Change Levy. Under these agreements businesses that accept and subsequently meet energy reduction targets will receive an 80% discount from the CCL until the year 2013.

The agreements are made between trade associations and DEFRA. There are over 40 agreements already in place. Individual companies and facilities can join these agreements at any time. Eligible facilities are those that operate specified processes listed in the Pollution Prevention and Control Regulations 2000, irrespective of the capacity of those processes.

### 1.5.3 The Enhanced Capital Allowance (ECA) Scheme

The Government has introduced the ECA Scheme ([www.eca.gov.uk](http://www.eca.gov.uk)) for energy saving investments in order to encourage business to reduce carbon emissions through providing a new incentive to invest in carbon-saving technologies.

The ECA Scheme supports CHP, boilers, motors, variable speed drives, lighting, refrigeration, pipe insulation materials, thermal screens, etc which meet the relevant energy efficiency criteria. The full list of products and systems was published in April 2001. The Energy Technology Product List is maintained and reviewed annually at the Carbon Trust.

The key features of the ECA Scheme

- all businesses are able to claim ECA
- ECAs permit the full cost of the investment in specified energy efficient technologies to be relieved for tax purposes against taxable income of the period of the investment (meaning that the businesses can take relief on the full cost in the first year)
- the qualifying technologies have to meet defined energy efficiency criteria
- claims for ECAs are made by businesses when they send in their tax return to the Inland Revenue for the period during which the expenditure is incurred

### 1.5.4 The Emissions Trading Scheme

An emissions trading scheme is a way of setting an overall target covering a group of emitters and then letting individual businesses decide in a flexible way how to achieve their own target. Those companies that over-achieve their targets may sell their surpluses to those companies that have missed their targets. For companies joining voluntarily with the financial incentive, targets will be framed in terms of absolute emission reductions (caps).

The Government has been working with the business-led Emissions Trading Group to develop the Emissions Trading Scheme. A draft framework for the scheme was published in May 2001. In the beginning of 2002 the UK Emissions Trading Scheme (UK-ETS), the first of its kind in the world, was launched. It is expected that the scheme will deliver more than 4 million tonnes of CO<sub>2</sub>-reductions. This is more than 5% of total UK reductions to be achieved by 2010.

The companies within Climate Change Agreements under the CCL will also be able to use emissions trading. For companies with agreements, trading will work alongside their existing targets, which are framed in terms of energy or emissions caps, or improvements in energy consumption or carbon emissions per unit of output (efficiency).

Funding of £215 million (about 325 million €) has been made available for an incentive fund, worth around £40 million (about 61 million €) per year over the five years, to encourage companies to take on voluntary emission reduction targets and join the scheme.

The financial incentive was allocated through an auction in April 2002. At the opening auction 34 organisations bid to pledge the highest possible emission reductions in return for a share of the Government incentive fund. The final bidding price was £53,37 (81,12 €) of incentive money per tonne of emission reduction pledged.

### 1.5.5 Summary of the fiscal incentives

Figure 2 shows the connections of the different schemes and fiscal incentives.

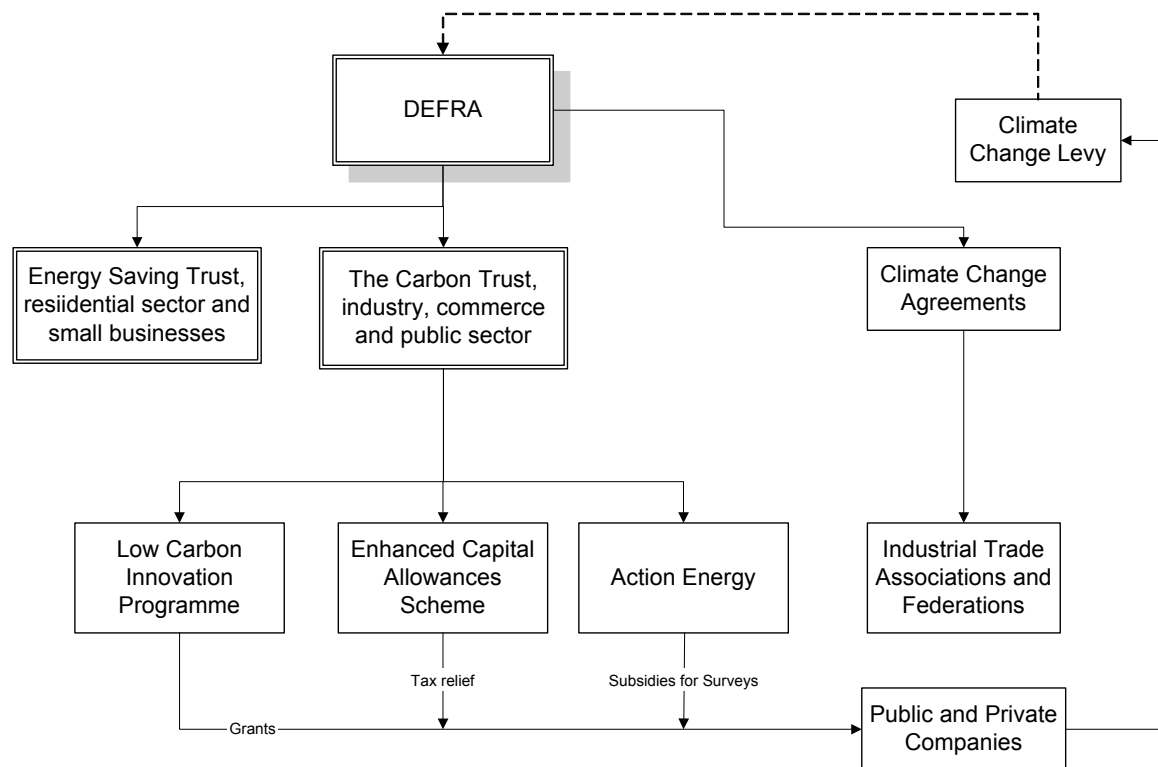


Figure 3 Fiscal incentives connected to different energy efficiency / climate change schemes

## 2 Energy Audit Programmes

There are no stand-alone energy audit programmes in the UK.

### 3 Other Programmes including Energy Audits

#### 3.1 Action Energy

Amongst its many activities, Action Energy includes the provision of support for energy surveys. The scope of the energy surveys and support provided depends on the nature of the site, its overall energy consumption, whether there are any specific issues that have to be addressed, in addition to the history of energy management activities at the site.

##### 3.1.1 Goals

Energy auditing, or energy surveys, have only recently been reintroduced to the Action Energy programme (Energy Efficiency Best practice programme) under the guise of the "Site Specific Advice" pilot scheme. This pilot ran from 1999 to April 2001, at which point the programme was officially launched. At its launch date the survey programme had target levels of activity set out over the first four years of its life. The target for the number of audits was 1500 in 2000/01, 2000 in 2001/02 and 4000 in 2002/03.

Although the amount of survey activity is large it needs to be seen in comparison to the numbers of organisations within the UK with significant energy spend. Table 1 shows the estimated breakdown of energy spend for a range of different sectors:

Total energy spend £	Number of organisations					
	IPPC industry	Non-IPPC Industry	Retail, Hospitality, incl hotels, pubs	Public sector incl public offices	Commerce & private sector offices	Total
<10k	-	1,400,000	300,000	140,000	600,000	~2.4 M
10-30k	-	10,000	1,600	7,000	30,000	~50,000
30-50k	100	6,000	350	2,000	5,000	~13,000
50-100k	200	4,000	400	1,000	5,000	~11,000
100-500k	2,000	9,000	200	1,100	4,000	~16,000
>500k	2,000	1,000	50	200	1,000	~5,000
total	~4,000	~1.4 M	~0.3 M	~0.15 M	~0.65 M	~2.5 M

Table 1 Energy spend range for different sectors

Within the context of the Action Energy programme, SMEs are considered as organisations with energy bills of less than £50k (€75k) per year.

##### 3.1.2 Target sectors

As can be seen from the above breakdown of activity, the site surveys cover all target sectors both buildings and industry. The strategy for the programme suggests that the programme should be demand led, i.e. being open to all and not focussing on specific industrial or buildings sectors.

The split of responsibilities between The Carbon Trust and the Energy Saving Trust has had an impact on the survey programme, Action Energy is no longer active in business transport nor in the residential buildings sector.

### 3.1.3 Administration

The administration of the surveys elements of Action Energy is split between 2 organisations. The Carbon trust is the main responsible body, all of the administrative routines have been contracted out to the Lead Contractor for operation of the Energy Helpline and Visit Administration, WS Atkins Consultants Limited.

#### The Carbon Trust – The Administrator

The Carbon Trust defines the annual budgets for the survey activity and sets the annual targets as part of its business planning process for the overall Action Energy programme. It does not get involved with any of the visit administration which it has contracted out. The Carbon Trust leads the overall strategic development of the site survey programme and ensures the co-ordination of survey activity with other Action Energy programme activities and with specific energy efficiency activities within the devolved administrations: The Scottish Executive, The National Assembly for Wales, The Northern Ireland Assembly.

#### WS Atkins Consultants Limited – The Operating Agent

WS Atkins are responsible for the overall operation of the survey programme in addition to the Energy Helpline. In this respect they are a one-stop-shop for all energy efficiency advice, whether provided directly by the Helpline operators or indirectly via experts within the Technical Lead Contractors, FES and BRESEC or by the external consultants contracted to the programme. It is the responsibility of WS Atkins to determine the most effective response mechanism.

Quality control of the consultant reports is undertaken on two main levels:

- An initial assessment of each report is undertaken by WS Atkins to ensure that the reports conform to the overall Style Guide in terms of layout and contents and contain the necessary disclaimers;
- A sample of reports are sent to the Technical Lead Contractors for a detailed technical review. Here the objectives are to ensure that the report presents advice that is in line with current Best Practice, and that the recommendations made by the consultants conform to expectations for the type of site and its industrial/commercial activity sector.

WS Atkins also have an annual budget devoted to development activity and work to a set of development targets agreed with The Carbon Trust on a quarterly basis.

In addition to the permanent staff in WS Atkins working on the Action Energy programme, the so called Key Account Managers forum was set up consisting of representatives of the main energy consultant companies in the UK (who account for approximately 50% of the energy auditors registered for the programme). This Key Account Managers Forum is used to pilot development ideas – e.g. revisions to the Style Guide, use of the Extranet for communications, contents for the bulletins, training needs, etc.

The administration of the survey programme is currently quite complex. The survey programme itself grew out of a number of separate initiatives and pilot schemes in the old Energy Efficiency Best Practice programme. Each of these individual schemes has set in place their own procedures, panels of consultants, reporting guidelines, etc and historically had been operated independently. With the appointment of WS Atkins a single administrator is responsible of all of the schemes and one of their earliest development tasks has been to consolidate all activities into a single coherent service.

The new structure of the Action Energy programme, although bringing in new expertise and skills, has also replaced two vertically integrated organisations with a horizontally integrated network, and co-ordination between the various actors in the programme adds an additional layer of complexity.

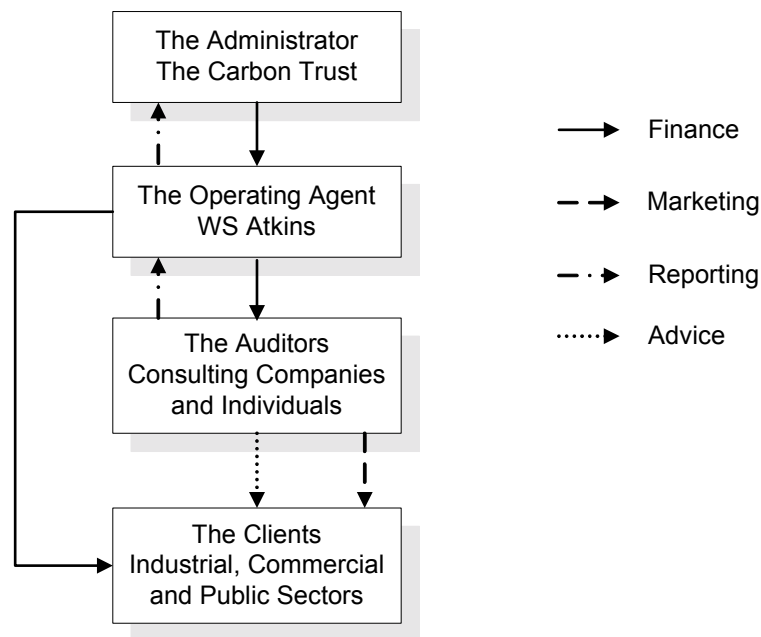


Figure 4 – Key Players and the administration of the Survey programme.

### 3.1.4 Implementing Instruments

Energy auditing is totally voluntary, there are no laws or regulations that require companies to have energy audits, and for so long as the relative price of energy remained low energy auditing activity was also low. However with the introduction of the Climate Change Levy and Climate Change Agreements, interest in the amount of energy consumption has risen. In the same time frame subsidies for energy surveys have been introduced. There is no formal link between the presence of a Climate Change Agreement between the government and an industrial sector and the availability of energy surveys to that sector – the whole ethos of the survey scheme is that it is open to all.

It is important to recognise however that surveys are one part of the provision of advice to clients to help them reduce their energy consumption:

- The Energy Helpline can provide very basic energy efficiency advice to clients based on information within the body of energy efficiency publications produced throughout the life of the Energy efficiency Best Practice programme. The Helpline can also send relevant publications to the client and where relevant signpost the client to other organisations.
- Where the nature of the enquiry exceeds the technical competence of the Helpline staff, they can refer the call to experts within the Technical Lead contractors. This escalation is used where the enquiry is of a general technical nature relating to energy efficiency opportunities within the sector.
- The enquiry can also be escalated to the panel of energy consultants, these experts would be used where the enquiry relates to the application of a particular technology on their site. The advice can be provided remotely over the phone and only in exceptional circumstances would the consultant be authorised to visit the site.



- Where the nature of the enquiry demonstrates that the client has little understanding of energy consumption and/or energy efficiency then a free general survey is offered.
- Where the nature of the enquiry suggests that the site requires a technical or economic assessment of a specific technology as a prelude to implementation, and provided that a general survey or its equivalent has already been undertaken and action taken on the basis of this general survey, then a subsidised detailed survey would be offered.

### 3.1.1 Energy Audit Models

The Action Energy programme recognises 5 generic types of ‘survey’ support:

- **For Small to Medium Sized Enterprises** – which in the context of Action Energy are those organisations whose energy consumption is less than £50k per year – a specific programme of advice has been created by The Carbon Trust and is run jointly with the Energy Saving Trust. The Action Energy programme provides the national Freephone Helpline, access to the knowledge base and access to expertise within the Technical Lead Contractors and panel of external consultants. The Energy Saving Trust provides the local delivery, with a network of Energy Advisors who are able to undertake “walk through” survey of the SME sites. The output of the walk through survey is a proforma report detailing the principle opportunities identified on that site.
- **General Surveys** – For organisations whose energy bill exceeds £50k per year, a free site survey is possible. Consultants are provided with a set payment to undertake this work, the payment being linked to the annual energy bill and of the site. The manager at WS Atkins is free to vary away from the recommended amounts provided that there is sufficient justification, for example if the nature of activities on the site present a significant degree of technical complexity. Table 2 shows the guideline payments to consultants (and an estimate of the number of days this payment is equivalent to).

Site Energy Bill	Guideline Payment for General Survey	Approximate Equivalent Days
50-100K	£700 (€1050)	2 days
100-500K	£1400 (€2100)	4 days
>500K	£3500 (€5250)	10 days

Table 2 – Guideline payments for General Surveys

- The ideal outcome of the General Survey is an Action Plan, ranking the opportunities into three main categories: ‘no cost’, ‘low cost’ and ‘requiring a capital investment’. Where opportunities require capital investment, estimated payback periods are also identified. The Action Plan needs to consider both the recommendations for action and the timetable for implementation and this must be agreed in principle with the client. The Action Plan is presented in a written report and in a briefing to senior management at the site. Agreement by the Client to a Post Visit Briefing is one of decision criteria whether or not to award a survey to the site.
- **Detailed Surveys:** Once a site has had a General Survey, or its equivalent, it becomes eligible for a Detailed Survey. The Detailed Survey would take one or more of the recommendations capital investment and provide the technical and economic justification – essentially a capital expenditure proposal ready for financing. Whereas General Surveys are free to the Client, Detailed Surveys are subsidised. In the Detailed Survey, the Client pays the full cost of the survey to the consultant and then reclaims the subsidy from the Action energy programme. The level of subsidy provided is 50% although this is presently subject to review.

- **Design Advice:** Design Advice applies only to new build and retrofit building projects, and offers professional, independent and objective advice on the energy-efficient and environmentally conscious design of buildings. Clients are offered a one-day consultancy on their chosen building project, paid for by a cashback scheme, i.e. the Client will pay the consultant directly and then reclaim the cost from the programme. The consultancy recommendations, covering energy efficiency, environmental improvements and the potential commercial benefits, are contained in a client report. More detailed specialist consultations is also supported under the service. Typical clients of Design Advice include building developers, fund providers, design teams, letting agents, housing associations, local authorities and building owners/tenants.
- **Multi-site Organisations:** Organisations with many sites, for example large industrial companies or large retail groups, require a specific approach that recognises the possibility for replication and internal dissemination of best practice. Such companies are dealt with on a case by case basis, through a form of partnership arrangement, co-ordinated by the Technical lead contractors FES and BRESEC.

### 3.1.5 Auditors' Tools

#### Consultants Extranet

The consultants extranet is a means of communication between the programme and the consultants and between the consultants themselves. The extranet is subdivided into 6 main areas: Surveys, Editorial, Helpline, General, Design Advice and Retail. Within each of these areas files relevant to the consultants are grouped and can be both up and downloaded.

#### Reporting Tools:

Guidelines have been prepared for consultant reports under each of the survey 'models' described above. These style guides give the main section headings for the reports and an indication of the contents to be provided within each section. For example the Style Guide for the General Survey recognises the following Section Headings:

Title page:

- Proforma page.

Contents page:

Executive Summary:

- The statement of objective.
- A statement of the overall energy use/spend of the company (by end use if relevant).
- A statement of site priorities for the visit, as agreed with the company.
- An overview Conclusions/Recommendations statement summarising: findings on the company's present energy efficiency policies/practices (such as levels of awareness, recent improvements, planned improvements, specific drivers etc) and a *brief* bullet summary of the Action Plan and priorities
- A Table showing all the recommendations split into no cost, low cost and requiring capital expenditure.

Section 1 Introduction and Background

- Survey details
- Company background
- Energy consumption
- Factors influencing energy use

## Section 2 Key Areas and Recommendations

- Energy Management and Reporting Systems
- Energy Performance
  - Buildings
  - Industrial Processes
  - Support Operations

## Section 3 Recommended EEBPP Publications

### Appendices – Supporting Material

There is a project underway to both facilitate the production of reports and to enable the data the reports contain to be imported into the Action Energy programme database. The programme database allows tracking of the interactions clients have with the programme and in addition allows the recording of consultants recommendations against the sites. On this basis the Action Energy programme is building up a knowledge store of recommendations against type and categories of companies and sites which will be used to guide programme direction in the future.

Through follow up activities, the programme can also trace the progression of the recommendations into implemented projects and thus provide a direct measure of the effectiveness of the scheme.

### Software Tools

Action Energy provides several on-line tools, some of which are also useful for the energy consultant. Some examples are:

- Energy Wizard – this is an internet based tool collecting together all of the current knowledge base relevant to the chemical industry, similar wizards are in development for other key industrial sectors.
- EMMA - multimedia energy management advisor;
- CHP Sizer – a software tool designed to assist in the sizing of CHP plant based on heat and power demand
- Government Estate Benchmarking Tool - allowing energy managers to calculate the energy performance of a building and compare it against similar buildings
- Degree Days – Used to standardise energy consumption used for heating and compare against targets.
- Boiler Efficiency Database - efficiency information for different fuels
- Effective Energy Management Guide - helps businesses to reduce energy costs and offset the effect of the Climate Change Levy

### Best Practice Publications

The Energy Efficiency Best Practice programme, as an information programme, has created a library of approximately 1500 publications and other media related to energy efficiency. These publication are split into 5 main groups:

- Good Practice Guides – Approximately 330
- General Information Leaflets – Approximately 100
- Good Practice Case Studies – Approximately 400
- New Practice / Future Practice Profiles – Approximately 100
- New Practice / Future Practice Reports – Approximately 100

There are also a further 400 publications, CDs, Videos etc to complete the library.

### 3.1.6 Authorisation, Training and Quality Control

#### Authorisation

When the survey programme was piloted it was recognised that one of the prerequisites for its success would be its continued ability to access a 'bank' of acknowledged energy professionals (known as energy consultants), to be available to offer advice and support the implementation of energy efficiency actions.

The EEBPp was therefore keen to review the options for establishing a recognised group of professional energy consultants to support Action Energy and commissioned a scoping study to investigate the issues. These included possibilities for:

- A register supported by the energy consultancy profession, developed with the involvement of all interested parties;
- A process of registration with accompanying application material and the development of a review panel and assessment criteria;
- Assessment criteria (including a set of required competencies) that mirror possible customers requirements for consultants' expertise;
- A code of conduct for registered consultants to aspire and adhere to;
- A set of disciplinary regulations and procedures for the removal of consultants from the register, to offer a means of redress through peer review, where a client organisation is justifiably dissatisfied with work carried out by a registered consultant, and;
- Identified training & development and on-going Continuing Professional Development (CPD) requirements for energy consultants.

The study concluded that there was the need for a responsible body to approve consultants and specifically to develop, manage, maintain and expand an independent register of consultants which would provide:

- A quality assurance system for energy consultants;
- A qualified resource base for the Action Energy programme to draw on;
- A register of the energy consultancy 'profession' accepted by and developed in collaboration with the profession concerned;
- A system of self regulation, reflecting a market-driven approach.

The development and implementation of the Consultants' Registration was considered an essential supporting measure to the survey programme as a means to guarantee access to a qualified body of skilled consultants. It was recognised however that the register could have broader uses, ultimately becoming the equivalent of the "Kite Mark" of the energy consultancy profession and used throughout industry and commerce as the source of skilled energy professionals. For this goal to be attained the register has been set up, and will be operated and maintained independently of any commercial affiliations.

To fulfil this requirement The Institute of Energy has been appointed as the responsible party for Consultant registration with the following core functions and responsibilities:

- Development of the registration process and associated documentation and systems, including process mapping, defining data and systems requirements, implementation of systems and continuous review.
- Promotion of the register to the energy consulting profession and other key stakeholders to expand the register;

- Transfer of the current panels of Action Energy approved consultants to the new registration system and reassessment of the consultants' demonstrated qualifications and competence in line with the requirements of the new systems in place.
- Ongoing registration of consultants including:
  - Receipt of applications to participate;
  - Verification of qualifications and experience and registration of consultants fulfilling the necessary criteria;
- Identification of skills gaps within the consultants resource base and the making of recommendations to The Carbon Trust of training activities to address these gaps.
- Maintaining the register up-to-date based on a systematic procedure and information provided by the consultants.

### Training

As a requirement to maintain their presence on the register the consultants are required to ensure that their skills remain up to date. As part of their development activities, and in collaboration with the Institute of Energy and the Technical Lead contractors FES and BRESEC, run training programmes for the consultants focusing on both the technical skills necessary for energy surveys but also the softer consultancy skills required to persuade senior decision makers within the clients to take action based on their recommendations.

### Quality control

The review system for the energy survey reports has three main levels:

- An initial assessment of each report is undertaken by the Operating Agent, WS Atkins to ensure that the reports conform to the overall Style Guide in terms of layout and contents and contain the necessary disclaimers;
- A sample of reports are sent to the Technical Lead Contractors for a detailed technical review. Here the objectives are to ensure that the report presents advice that is in line with current Best Practice, and that the recommendations made by the consultants conform to expectations for the type of site and its industrial/commercial activity sector. The sampling rate varies depending on the type of report. Current sampling rates are: 1 in 3 for the general surveys and design advice, all detailed surveys, 1 in 10 for SME reports.

Customer satisfaction surveys are also undertaken together with client feedback interviews, concentrating on the consultants' work and activities on site.

### **3.1.7 Monitoring**

The Action Energy programme has a database which has been developed along the principles of Customer Relationship Management. The main functions of the database are:

- To underpin operation of the Helpline, recording the contacts with the clients and the response mechanisms or actions launched;
- To track the administration of the surveys and other forms of consultant support;
- To record data about the client sites, not only their energy consumption but also sector, numbers of employees, contacts at the sites etc. A project is underway to develop the database further to track the recommendations identified in the consultants' reports on a site by site basis and to enable the direct importation of consultant report data into the database. A corollary of this project will be the need to import the historical data from the reports into the database.

The other element of the overall programme monitoring is the Follow Up mechanism. A key feature of the survey programme is that the advice given is followed-up to drive action and to identify whether any additional help is needed to encourage companies to take action. Follow-up activities under the service are divided into two distinct parts

- Service quality issues. This is monitored on an ongoing basis by the Operating Agent for those elements of the service quality that relate to the performance of the consultants. The Carbon Trust itself also monitors the performance of the Operating Agent using an independent market research contractor who obtains information from the client on their perception of the service and the Management team. General feedback on this activity is supplied to the consultants through briefings and newsletters. Issues relating to the performance of individual consultants are communicated personally as required.
- Monitoring of action. The mechanism makes provision for a consultant to be contracted to contact the site six months after the date of the general or detailed survey to check on the implementation of recommendations and to identify whether additional help is needed. In some cases the follow-up is carried out by the consultant who undertook the visit, as part of building the ongoing relationship between the client and the scheme. In other cases, the follow-up is co-ordinated through the Operating Agent.

### 3.1.8 Auditing volumes

At its launch date the survey programme had target levels of activity set out over the first four years of its life, as shown in Table 3 below:

	2000/01	2001/02	2002/03	2003/04
Type of visit	Actual / Target No of surveys			
General Surveys: Industrial	315	400	500	
General Surveys: Buildings	145	300	500	
Detailed Surveys: Industry	10	30	100	
Detailed Surveys: Buildings	10	30	100	
CHP Surveys	60	60	40	
Design Advice Scheme	500	600	500	
Support to SMEs	450	800	2000	
Retail Briefings	170	150	200	
<b>Total Number of Surveys</b>	<b>1660</b>	<b>2370</b>	<b>3940</b>	<b>6000</b>
Target Number	1500	2000	4000	6000

Table 3 Activity Levels for the Survey programme

To date the programme has exceeded its targets, and indication are that the same will occur during the current year as well with demand for General surveys exceeding targets particularly in the industrial sector. The number of surveys planned for 2003/04 will depend greatly on the outcome of impact assessment study and other performance measurement exercises being carried out under the direction of The Carbon Trust. The goal of the Carbon Trust is to channel its limited funding into areas that will give the UK the greatest carbon return in the short, medium and long terms.

## 4 Other Activities including Energy Audits

### 4.1 The Energy Saving Trust

The Energy Saving Trust (EST) is a non-profit company set up in 1992 by the Government and major energy companies. Working with a range of partners, EST focuses on delivering practical solutions for households, small firms and the road transport sector - solutions which save energy and deliver cleaner air.

Current priorities are:

- to stimulate energy efficiency in UK households and achieve social, environmental and economic benefits
- to create a market for clean fuel vehicles which will deliver local and global environmental benefits
- to stimulate a market for renewable energy which will achieve social, environmental and economic benefits

The Energy Saving Trust works with partners in managing and delivering energy efficiency to businesses as well as consumers and public sector organisations across the UK.

Since 1995, the Trust has received direct funding from the Government. The Government has confirmed it will provide at least £40 million (nearly 61 million €) to fund the Trust's programme in 2000-2001.

Energy Efficiency Standards of Performance (now known as the Energy Efficiency Commitment, EEC) has proved an effective way for electricity companies to invest in energy efficiency. Since 1994, the Public Electricity Suppliers have provided around £25 million (38 million €) a year under a programme originally developed and overseen by the EST. The new, two-year phase of the Energy Efficiency Commitment (EEC) began on 1 April 2000. The introduction of gas in the framework of the EEC marks a major step forward. The regulator, Ofgem, has set the funding level for EEC at a supplier expenditure of £1.20 (1,8 €) per household per fuel annually.

The Energy Saving Trust is involved in a number of initiatives concerning energy efficiency, renewable energy and clean fuels. Some examples

- 'Energy Efficiency' is a national branding and marketing programme that aims to transform consumers' attitudes to energy efficiency - and thus their buying behaviour as well.
- Energy Efficiency Partnership for Homes is a government- endorsed initiative that aims to bring together all the key players in delivering domestic energy efficiency. The Government, through the Department for Environment, Food & Rural Affairs (DEFRA), plays a key role in the development of the Partnership.
- Energy Efficiency Advice Centres (EEACs) provide free, impartial and locally relevant energy efficiency advice to householders and small businesses across the UK. The 52 centres around the country work in partnership with local and national bodies. The Energy Efficiency Advice Centres provide information and subsidies for energy management and increase adoption of energy-efficiency measures in households and small businesses. Financial support is offered to small and medium sized industrial enterprises for energy efficiency consultancy and project management to achieve the EC EMAS status. Energy audits have been sometimes applied in the consultancy.
- Practical help for local authorities is a one-stop shop information service, funded by the EST, which aims to support local authorities in all matters relating to energy.

- HECA is a competitive funding programme assisting local authorities in setting up energy efficiency initiatives and implementing their Home Energy Conservation Act (HECA) strategies.
- Lightswitch promotes energy efficient lighting in the non-domestic sector. It offers rebates for the purchase of lighting controls, and for energy efficient lighting products.
- SchoolEnergy encourages effective energy management in schools by providing grants of up to £3000 (4 560 €) for energy saving measures, and encourages energy education.

## 5 References

### Reference material

- Carbon Trust brochure Towards a low carbon economy
- Carbon Trust brochure Making business sense of climate change
- Action Energy Newsletter for Consultants participating in the Action Energy Service, vol2 Nr1 December 2001

### Web-sites

- [www.thecarbontrust.co.uk](http://www.thecarbontrust.co.uk)
- [www.actionenergy.org.uk](http://www.actionenergy.org.uk)
- [www.designadvice.co.uk](http://www.designadvice.co.uk)
- [www.housingenergy.org.uk](http://www.housingenergy.org.uk) (residential sector)
- [www.est.org.uk](http://www.est.org.uk) (Energy Saving Trust)
- [www.defra.gov.uk](http://www.defra.gov.uk)
- [www.uketg.com](http://www.uketg.com) (about emissions trading)
- [www.ea.gov.uk](http://www.ea.gov.uk) (about the Enhanced Allowances Scheme)
- [www.bre.co.uk](http://www.bre.co.uk)
- [www.practicalhelp.org.uk](http://www.practicalhelp.org.uk) (Energy Efficiency advice for local authorities, Energy Saving Trust)
- [www.saveenergy.co.uk](http://www.saveenergy.co.uk)

### Currency

1 GBP = 1,52 €

1 € = 0,66 GBP (June 2002)